

CLAIMS:

1. A storage unit for a tester channel, comprising
:
a shared storage ;
at least one buffer, preferably a FIFO buffer, that is adapted for buffering
one or more of the incoming and outgoing data streams, and
an arbitration unit adapted for controlling accesses to the shared storage,
said arbitration unit comprising:
a set of interfaces adapted for connecting a plurality of units with said
arbitration unit , wherein outgoing data streams are transmitted from the
arbitration unit via respective ones of said interfaces to at least one of
said units, and wherein incoming data streams are transmitted from at
least one of said units via respective ones of said interfaces to the
arbitration unit, and
a control logic that is connected to each of said interfaces , said control
unit being adapted for segmenting write data of incoming data streams in
order to set up write accesses to said shared storage, for scheduling a
sequence of at least one of write and read accesses to said shared
storage , and for distributing read data obtained during said read
accesses to outgoing data streams.
2. The storage unit of claim 1, wherein at least one of said interfaces
comprises at least one buffer, preferably at least one FIFO buffer, that is
adapted for buffering one or more of the incoming and outgoing data
streams.
3. The storage unit of claim 1, wherein each of said interfaces is connected
to a respective one of said units.
4. The storage unit of claim 1, wherein at least one of said units is adapted

for transmitting at least one of write requests or read requests to the storage unit, wherein at least one write request indicates a start address and a size of the data block that is to be written to said shared storage, and wherein at least one read request indicates a start address and a size of the data block that is to be read from said shared storage.

5 5. The storage unit of claim 1, wherein said control logic is adapted for scheduling said read accesses and said write accesses based on priorities that are assigned to at least some of the various interfaces, or to at least some of the various incoming and outgoing data streams.

10 6. The storage unit of claim 1, wherein said control logic is adapted for considering a low latency of an incoming or outgoing data stream by assigning a correspondingly high priority to the respective data stream.

15 7. The storage unit of claim 5, wherein said control logic is adapted for modifying said priorities in a way that the amount of switching from write to read, or vice versa, is kept small.

8. The storage unit of claim 5, wherein said control logic is adapted for modifying said priorities in a way that a continuous transmission of at least one of said data streams is promoted.

20 9. The storage unit of claim 5, wherein said control logic is adapted for modifying said priorities in a way that the higher the fill level of a buffer gets, the higher the priority of the corresponding buffered data stream will become.

25 10. The storage unit of claim 1, wherein said storage unit is adapted to be used in a channel of an automated test equipment for coordinating the memory accesses to said shared storage, wherein said channel is responsible for at least one of: providing stimulus data to at least one DUT, and receiving response data from said at least one DUT.

11. The storage unit of claim 1, wherein at least one of said units represents at least one of: a sequencer (2), a result processing unit , an interface module adapted for establishing a data link between the channel and a central facility, and a microprocessor core .
- 5 12. The storage unit of claim 11, wherein said storage unit is adapted for transmitting outgoing data streams to said sequencer (2), said outgoing data streams comprising at least one of instructions (3) and sequencer data (4).
- 10 13. The storage unit of claim 12, wherein said control logic is adapted for assigning a high priority to an outgoing data stream that comprises instructions for said sequencer.
14. The storage unit of claim 11, wherein said storage unit is adapted for receiving an incoming data stream from said result processing unit , said incoming data stream comprising result data that is to be written to said shared storage.
- 15 15. The storage unit of claim 11, wherein said storage unit is adapted for exchanging data streams with said interface module , wherein a high priority is assigned to said data streams .
16. The storage unit of claim 1, wherein said shared storage is a dynamic Random Access Memory,
- 20 17. The storage unit of claim 1, further comprising a memory maintenance unit adapted for providing maintenance requests to said shared storage.
18. The storage unit of claim 16, wherein said Random Access Memory is a Dynamic Random Access Memory.
- 25 19. A channel for use in an automated test equipment, said channel comprising:

a storage unit with an arbitration unit adapted for controlling accesses to a shared storage, said arbitration unit comprising:

5 a set of interfaces adapted for connecting a plurality of units with said arbitration unit, wherein outgoing data streams are transmitted from the arbitration unit via respective ones of said interfaces to at least one of said units, and wherein incoming data streams are transmitted from at least one of said units via respective ones of said interfaces to the arbitration unit, and

10 a control logic that is connected to each of said interfaces, said control unit being adapted for segmenting write data of incoming data streams in order to set up write accesses to said shared storage, for scheduling a sequence of at least one of write and read accesses to said shared storage, and for distributing read data obtained during said read accesses to outgoing data streams.

15 a sequencer adapted for reading data from said storage unit, and for providing stimulus data to at least one DUT; and

a result processing unit adapted for evaluating result data obtained from said at least one DUT, and for writing data to said storage unit.

20. 20 The channel of claim 19, further comprising an interface module adapted for establishing a data link between the channel and a central facility.

21. An automated test equipment adapted for testing at least one DUT, said automated test equipment comprising:

at least one channel (1) according to claim 19; and

a central facility adapted for coordinating said at least one channel.

25 22. A method for arbitrating accesses to a shared storage, said shared storage being accessed by a plurality of units, said method comprising the

following steps:

segmenting write data of incoming data streams in order to set up corresponding write accesses to said shared storage;

5 scheduling a sequence of write and read accesses to said shared storage;

distributing read data obtained during said read accesses to outgoing data streams.

23. A software program or product, preferably stored on a data carrier, for
executing the method of claim 22 when run on a data processing system
10 such as a computer or a digital signal processor.